

**BUREAU OF ENVIRONMENTAL REMEDIATION/REMEDIAL SECTION
GUIDELINE
SCOPE OF WORK (SOW)
FOR A
CORRECTIVE ACTION PLAN (CAP)/
CORRECTIVE ACTION (CA)**

BER POLICY#BER-RS-023

DATE: 1993

Revised 12/2001

Revised 12/2005

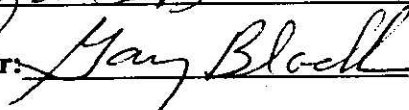
PAGES: 6

Section Chief:



Date: 12/28/05

Bureau Manager:



Date: 12/30/05

REVISIONS

Reviser: Jean Underwood and Mary Daily

Date of Revision: 12/2005

Reviser: Rob Elder

Date of Revision: 12/2001

ORIGINATOR

Originator: Rachel Miller

Date: 6/18/93

BUREAU OF ENVIRONMENTAL REMEDIATION/REMEDIAL SECTION
GUIDELINE
SCOPE OF WORK (SOW)
FOR A
CORRECTIVE ACTION PLAN (CAP)/
CORRECTIVE ACTION (CA)

BER POLICY#BER-RS-023

DATE: 1993

Revised 12/2001

Revised 12/2005

PAGES: 6

The Final Corrective Action Decision (CAD) identifies the remedial action(s) that will be implemented to address contamination of environmental media and prevent or eliminate exposure to receptors. The selected remedy is planned, designed, constructed, and implemented during the Corrective Action Plan and Corrective Action phases.

The primary objectives of the Corrective Action Plan (CAP) are described as follows:

- 1) To provide a preliminary conceptual design of the corrective action (CA) and a description of the tasks necessary to implement the corrective action consistent with the CAD;
- 2) To obtain additional data, if necessary, to support the development of the detailed design plans and specifications;
- 3) To provide detailed design plans and specifications including an Operations and Maintenance manual for the corrective action system;
- 4) To provide a Contingency Plan that identifies an alternative corrective action to be implemented in the event of a significant failure of the corrective action system;
- 5) To identify and obtain necessary easements and permits required for the implementation of the corrective action; and,
- 6) To create a Site Monitoring and Performance Evaluation Plan to monitor the effectiveness of the corrective action.

The primary objectives of the Corrective Action (CA) are described as follows:

- 1) To implement the Corrective Action Plan (CAP) as approved by KDHE;
- 2) To operate and maintain the corrective action system as described in the approved Operations and Maintenance Manual;
- 3) To evaluate and monitor the performance of the corrective action as described in the approved Site Monitoring and Performance Evaluation Plan;
- 4) To determine whether corrective action goals have been attained, or are likely to be attained;

- 5) To confirm attainment of corrective action goals by conducting post-corrective action monitoring as described in the approved Site Monitoring and Performance Evaluation Plan;
- 6) To implement the approved Contingency Plan to design, install and operate additional or alternative corrective action measures in the event the implemented corrective action is unable to attain corrective action goals within a reasonable timeframe as determined by KDHE;
- 7) To document and report to KDHE all activities performed pursuant to the corrective action;
- 8) To submit a final report to KDHE for approval which briefly describes the corrective action implemented at the site, and provides the appropriate data documenting that site-specific corrective action goals have been attained; and,
- 9) If desired, to submit a site reclassification plan to KDHE for approval, which reclassifies a site to resolved status on the Kansas Identified Sites List.

1.0 CORRECTIVE ACTION PLAN

This Scope of Work outlines the required elements of the CAP which is to be prepared as a deliverable document. The CAP shall, at a minimum, include the components described in Sections 1.1 through 1.5.

1.1 CORRECTIVE ACTION PLAN SCHEDULE

A detailed schedule must be provided which defines the dates for the performance of certain milestone corrective action tasks and provides dates for the submission of appropriate corrective action plans described in Section 1.5. It is suggested the detailed schedule be presented graphically in the form of a milestone chart (e.g., Gantt or Pert chart) or critical path diagram. As necessary, the detailed schedule must be updated and submitted to KDHE as part of the routine reporting requirements.

1.2 TASKS REQUIRED TO COMPLETE THE CORRECTIVE ACTION

Describe in detail all tasks necessary to acquire additional data to support the development of a final design corrective action plan and to construct, implement, and monitor the performance of the corrective action. All necessary tasks shall be documented and described in adequate detail to clearly state the manner in which they will be implemented and reported. The tasks shall address obtaining appropriate easements, permits, etc. and, where hazardous substances, pollutants, or contaminants will remain on site at concentrations that disallow unlimited use and unrestricted exposure, include those tasks necessary for implementing institutional controls within the framework of KDHE's Environmental Use Controls Program.

1.3 DESIGN SPECIFICATIONS FOR THE CORRECTIVE ACTION

Complete design specifications and drawings/schematics, including any relevant figures and/or site system engineering layouts (e.g., process flow diagram, piping and instrumentation diagram, etc.), shall be provided. Dependent upon the scale and complexity of the corrective action, as

determined in a consultation with KDHE, preliminary, intermediate and/or pre-final/final design plans shall be submitted to KDHE for approval. The Final Design Corrective Action Plan shall provide specifications in sufficient detail so that contractors may bid (unit basis) on the construction, implementation, and operation of the corrective action system(s).

1.4 SITE MONITORING AND PERFORMANCE EVALUATION PLAN

A Site Monitoring and Performance Evaluation Plan shall be provided as an element of the Final Design Corrective Action Plan to document the activities necessary to evaluate the effectiveness of the corrective action, including post-corrective action monitoring, if appropriate. At a minimum, the performance evaluation plan shall include:

- a description of the site-specific corrective action goals;
- a description of the corrective action system operations that will be evaluated and identification of criteria that will be used to evaluate system performance;
- frequency, methods, and rationale for site monitoring;
- a description of the environmental media to be monitored (ground water, surface water, soil, soil vapor, etc.);
- a description of quality assurance/quality control (QA/QC) considerations for the laboratory and field;
- identification of institutional controls that will be monitored;
- a plan for evaluating changes in land use of impacted areas that may alter the effectiveness of the corrective action; and,
- a description of reporting methods, format, and frequency.

At a minimum, the Site Monitoring and Performance Evaluation Reports shall include:

- a narrative description and graphic illustration of the effectiveness of the corrective action;
- a description of system operations and performance;
- a system startup report and “as built” drawings of the corrective action system (required for the first Site Monitoring and Performance Evaluation Report);
- a description of repairs or modifications made to the corrective action system during the reporting period, as appropriate;
- laboratory analytical data including copies of laboratory reports and summary tables;
- contaminant isoconcentration maps;
- a tabular comparison of the current monitoring data to previous monitoring results;
- a figure illustrating the site and associated monitoring wells or other sample point locations;
- static water elevation measurements;
- a contour map of the water level elevation;
- a description of any deviations from the approved sampling procedures;
- results of QA/QC data and an evaluation of the validity of the analytical data;
- logs of any newly constructed site wells;

- an evaluation of the effectiveness of institutional controls implemented for the corrective action (monitoring frequency will be identified in the approved Site Monitoring and Performance Evaluation Plan);
- an evaluation of land use of the impacted area (monitoring frequency will be identified in the approved Site Monitoring and Performance Evaluation Plan);
- specific conclusions and recommendations (for further action or change) based on historical site monitoring and performance data trends; and,
- all other relevant site data collected during the reporting period.

1.5 DELIVERABLES FOR THE CORRECTIVE ACTION PLAN

Corrective Action Plans shall be submitted to KDHE for approval. Corrective Action Plans to be submitted may include:

- Preliminary Design Corrective Action Plan, which documents the conceptual design of the corrective action;
- Data Acquisition Plan (optional), which describes various tasks necessary to gain additional data to develop the final design specifications;
- Intermediate Design Corrective Action Plan (optional), which integrates newly collected data into a refined conceptual design of the corrective action; and,
- Pre-Final/Final Design Corrective Action Plan, which provides detailed design specifications for the corrective action, describes all the tasks necessary to construct and implement the corrective action, and includes a schedule for construction and implementation of the corrective action.

The KDHE project manager shall be consulted to determine if a Data Acquisition Plan or Intermediate Design Corrective Action Plan are necessary. If field activities or treatability/pilot studies will be conducted to gain additional data for the design activities, a Data Acquisition Plan shall be submitted for KDHE approval. The Data Acquisition Plan should include the following appendices: a Field Sampling Plan; a Quality Assurance Project Plan; and, a Health and Safety Plan.

Supplemental plans that may be incorporated into the Preliminary and Pre-Final/Final Design Corrective Action Plans include:

- an Operations and Maintenance Manual;
- a Site Monitoring and Performance Evaluation Plan;
- a Construction Quality Assurance Project Plan;
- a formal Contingency Plan; and,
- a Health and Safety Plan for the Corrective Action.

The KDHE project manager will determine which supplemental plans are required to be submitted for approval based on the individual site requirements.

2.0 CORRECTIVE ACTION

The Corrective Action (CA) shall, at a minimum, include the components described in Sections 2.1 through 2.4.

2.1 IMPLEMENTATION OF SELECTED CORRECTIVE ACTION

The corrective action selected for the site shall be implemented in accordance with the KDHE-approved Pre-Final/Final Design Corrective Action Plan. Implementation of the corrective action shall proceed according to the schedule contained within the KDHE-approved Pre-Final/Final Design Corrective Action Plan.

2.2 SITE MONITORING AND PERFORMANCE EVALUATION

The effectiveness of the corrective action shall be monitored as provided through implementation of the Site Monitoring and Performance Evaluation Plan described within the KDHE-approved Pre-Final/Final Design Corrective Action Plan. The schedule and frequency for corrective action performance evaluation and site monitoring shall proceed according to the KDHE-approved schedule in the Pre-Final/Final Design Corrective Action Plan.

Site Monitoring and Performance Evaluation Reports must be submitted to KDHE in accordance with the KDHE-approved Site Monitoring and Performance Evaluation Plan contained within the Pre-Final/Final Design Corrective Action Plan. The Site Monitoring and Performance Evaluation Reports should contain all of the information and data as described within the Site Monitoring and Performance Evaluation Plan, including a narrative description and/or graphic evaluation of the effectiveness of the corrective action as compared to the site-specific corrective action goals.

If the site monitoring and performance evaluation program demonstrates that the implemented corrective action is incapable of achieving corrective action goals within a reasonable timeframe as determined by KDHE, the Site Monitoring and Performance Evaluation Report should recommend modifications or augmentation to the existing corrective action system that will enable the system to achieve the corrective action goals. KDHE must be notified within seven days of any significant changes that may diminish the effectiveness of the implemented corrective action to protect human health and the environment.

2.3 IMPLEMENTATION OF THE CONTINGENCY PLAN

If it is demonstrated that the implemented corrective action is incapable of achieving corrective action goals, and modification or augmentation of the existing corrective action system does not or will not enable the system to attain corrective action goals, the approved Contingency Plan shall be implemented. If the contingent remedy represents a fundamental change from the original selected remedy, then community involvement activities and CAD Amendment may be necessary.

2.4 CORRECTIVE ACTION DELIVERABLES

A Final Corrective Action Report that documents the corrective action implemented at the site has satisfied the site-specific corrective action goals shall be submitted to KDHE for approval. The Final Corrective Action Report may consist of any one or more of the following:

- Final Site Monitoring and Performance Evaluation Report;
- Final Post-Corrective Action Monitoring Report;
- Final Corrective Action Report; and/or,
- Reclassification Plan (see Reclassification Plan Scope of Work).

The KDHE project manager will be consulted to determine the appropriate form or content of the Final Corrective Action Report. Upon approval of the Final Corrective Action Report, KDHE shall issue a letter confirming completion of corrective action implemented at the site. If desired, the respondent may submit a Reclassification Plan to KDHE for approval. Upon approval of the Reclassification Plan, the site will be reclassified to a resolved status on the Kansas Identified Sites List.

3.0 RECOMMENDED GUIDANCE AND REFERENCES

KDHE strongly recommends that any persons performing Corrective Action Plan/Corrective Action activities with State of Kansas oversight obtain and familiarize themselves with the following documents. These documents provide guidance on the preparation, implementation, and reporting of CAP/CA activities, and constitute much of the technical basis on which KDHE reviews work plans, reports, and other submittals related to the CAP/CA process. Information on obtaining the EPA documents is available on-line at <http://www.epa.gov/epahome/publications.htm>. Information on the State Cooperative Program administered by the Remedial Section of the Bureau of Environmental Remediation can be found on-line at the KDHE web site at http://www.kdheks.gov/remedial/state_remedial_unit.html.

EPA/600/R-98/018 February 1998; EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5).

EPA 600/R-96/055 August 2000; Guidance for the Data Quality Objectives Process (EPA QA/G-4).

EPA 540/R-95/059 June 1995; Remedial Design/Remedial Action Handbook.

Useful Website Links

Environmental Use Controls - <http://www.kdheks.gov/remedial/eucs.htm>

Risk-Based Standards for Kansas - http://www.kdheks.gov/remedial/rsk_manual_page.htm